PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry

"FCS Update: Logistics Part of the Plan"

LTG (Ret) Daniel R. Zanini
Senior Vice President / FCS Deputy Program Manager
Science Applications International Corporation

Mr. Philip Hodges
Deputy Program Manager, Supportability
FCS (BCT)

16 May 2006

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

Joint Operational Environment

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry

Adversaries Will Seek to:

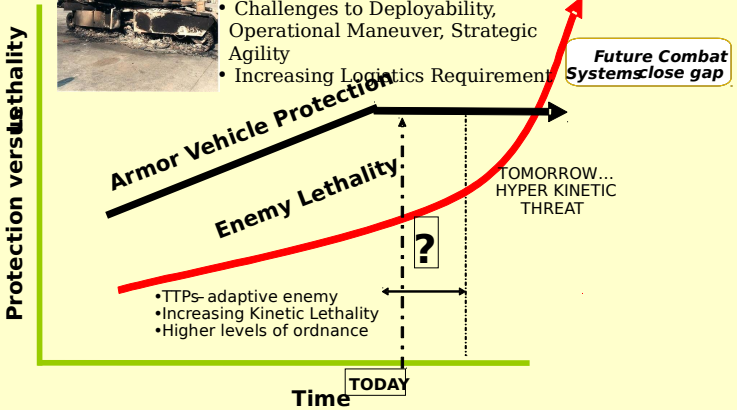
- **Deter US involvement**
- **Isolate US from local support or allies**
- **Contest entry operations**

Operational Complexity:

- **Adversaries who have "gone to school" on U.S. operations**
- **Asymmetry**
- **Simultaneous, full spectrum operations in complex terrain**

Adversaries are Closing the Gap

- Technical Limit to volumetric/ armor solution
- Challenges to Deployability, Operational Maneuver, Strategic Agility
- Increasing Logistics Requirement



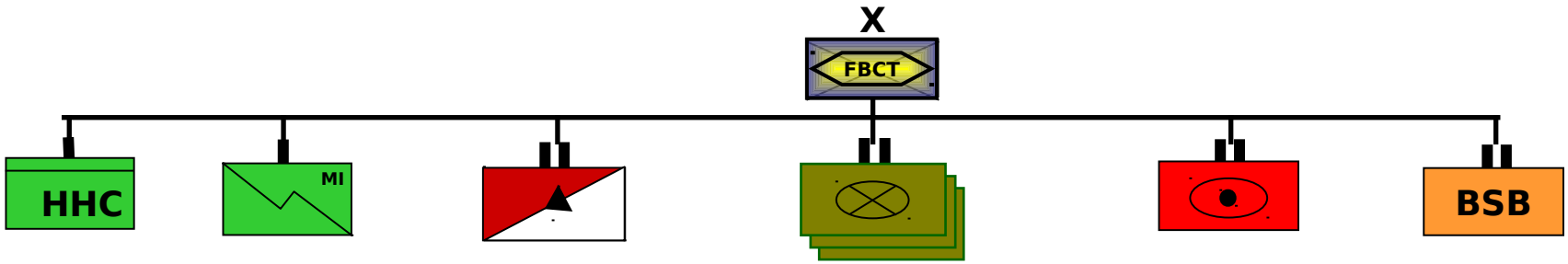
Future Forces:

- **Project from US base and sustain in anti-access environment**
- **Must be multi-role capable – Full Spectrum**
- **Lethality and survivability overmatch… perhaps in new/different ways.**

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

FCS (BCT) Organization

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry



FBCT C2

C2V

Mobile Cmd Groups
Tactical Cmd Post

CABs
Mobile Cmd Group
Tactical Cmd Post

BIC

- Range Extension Plt
- Net Ops Plt
- Analysis & Processing Sect
- Collection & Integration Sect

Battle Command:

Networked Battle Command Enabling Systems.

Combat Maneuver & Recon Capabilities

MCS

6 MCS Companies
6 ICV Companies
3 Recon Troops
3 Mortar Batteries

102 ICV
(1088 - 11B)

NLOS-M

R&SV

UGV
ARV-RSTA

UGV
ARV-A
ARV-L

KNIGHT
(COLT Teams)

Intelligence & Surveillance Capabilities:

CL I

CL II

CL III

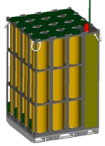
CL IV

SUGVs

UGS
Tactical Urban

Networked Fires

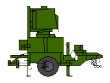
NLOS-C (3 Batteries)



NLOS-LS

Protection

Q36



Q64

IMS

MULE-CM

Support

Maintenance

FRMV

Sustainment

HEMTT LHS & PLS TRL

Medical Evac/Treatment

MV-E
MV-T

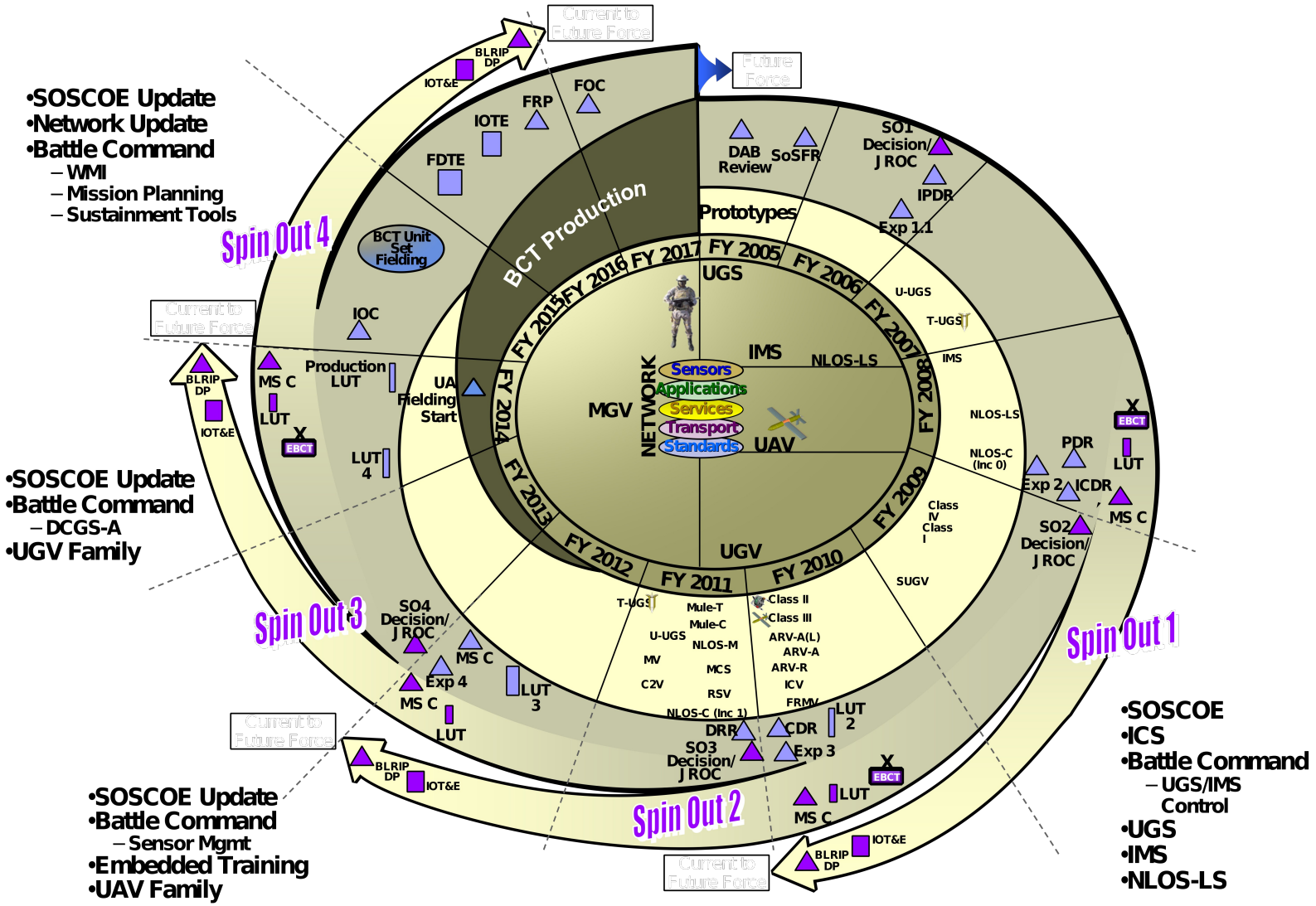
MULE-T

BSB provides sustainment, medical, and maintenance support across the BCT

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

FCS (BCT) Program Schedule

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry



FCS Spinning Out Needed Capabilities to the Current Force

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

Integration Phase (IP) 1 Look Ahead Through FY 2008

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry

4Q FY05 | 1Q FY06 | 2Q FY06 | 3Q FY06 | 4Q FY06 | 1Q FY07 | 2Q FY07 | 3Q FY07 | 4Q FY07 | 1Q FY08 | 2Q FY08 | 3Q FY08 | 4Q FY08

Joint Requirements Oversight Council (JROC)

DAB Review

Initial Preliminary Design Review (IPDR)

DAB Review (T)

EBCT Stand-u

System-of-Systems Preliminary Design Review (SoSPDR)

Spin Out (SO) 1 MS C

Integration Verification (IV) 0 / Integrated Mission Test (IMT)

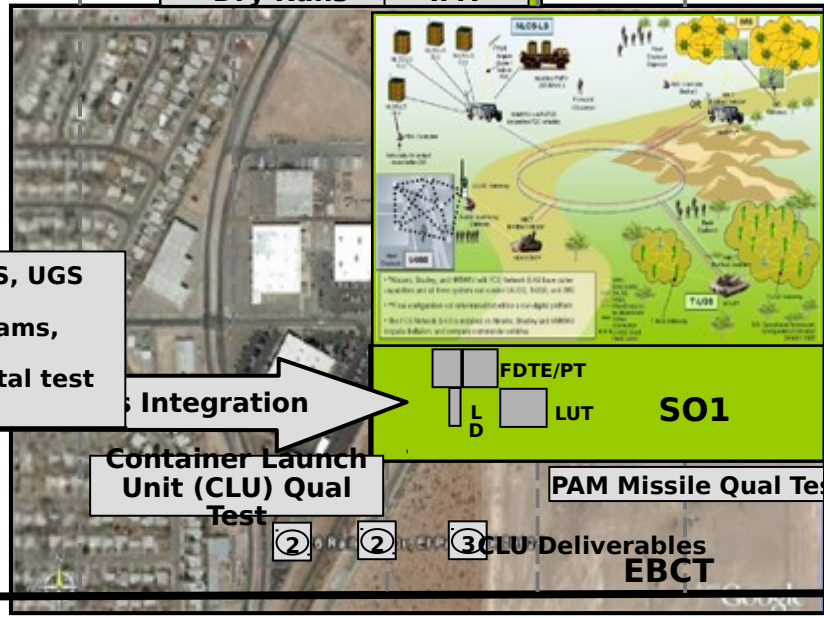
Exp 1.1

Lab | Field | Demo

IV1 / IMT

Dry Runs | IMT

JEFX 06



- IMS, NLOS-LS, UGS IQT
- Bradley, Abrams, HMMWV Developmental test with A/B kits

Network Test and Verification

Network Lab Integration and Testing

Integration

FDTE/PT

LUT

SO1

Container Launch Unit (CLU) Qual Test

PAM Missile Qual Tes

CLU Deliverables

EBCT

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

FY06 Objectives On Track

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry

SOSFR

FY05 | FY06

System Level SFRs

DEC 05

Initial Preliminary Design Review

JEFX06 and Experiment 1.1 Long Lead

Integration & Verification Build 0

Spin Out 1 CDD

SFRs: MGV, UAV, Class I, UGV

Conduct System Revi

PDR UGV, UAV, Class IV

CDR UGS

PDR SUGV

Hardware Prototype Procureme

Build, Integrate, Te

Requirements –Design Convergence

Softwar e Builds

SOSCOE Build 1.5

ICS Operating System Build 1.8

SoS Framework (S2F) Build 1.0

Initial LDSS and PSMRS Prototypes

JEFX06 and Experiment 1.1

Transitioning to Build, Integrate and Test

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

FY07 Objectives

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry

FY06 Q4 | FY07 Q1 | Q2 | Q3 | Q4 | FY08

ICT(T) QFR(T) DAB (T)

Program Reviews

Design Reviews

NLOS-C DR3 | Class I PDR | Class IV CDR | SUGV CDR | UGV PDR | JEFX-08 Develop HW & SW

IV1 / IMT
Dry Runs | IMT

IP1

Phase 1 Engineering Lab Experiment SoSIL

Phase 2 Engineering Field Experiment WSMR, NM

Phase 3 Tactical field Demo WSMR, NM

Experiment 1.1

X

EBCT
Unit Designation

Network Test and Verification

- IMS, NLOS-LS, UGS IQT
- Bradley, Abrams, HMMWV Developmental test with A/B kits

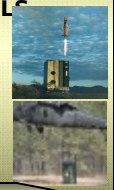
Network Lab Integration and Testing

SO 1 & Current Systems Integration

CLU Qual Test

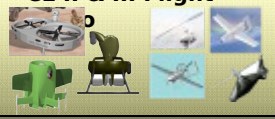
SO1 Hardware Prototypes

UGS | ICS | FBCB2 | GMR | NLOS-LS



Hardware Prototype

APS | NLOS-Cannon Firing Platform Testing @ YPG | CL II & III Flight | UGS | ICS | IMS | ASTAMIDS | CL IV



NLOS-Cannon Firing Platform Testing

Software Builds

ICS Operating System Build 1.8

Initial LDSS and PSMRS Prototypes

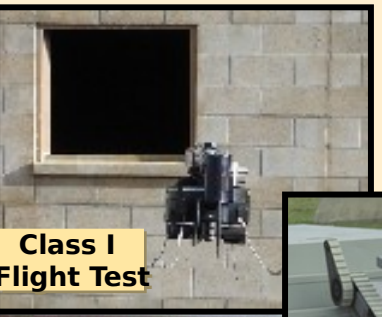
SoS Framework (S2F) Build 1.0 Available

SOSCOE Build 2.0

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

Recent Significant Events

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry


Class I Flight Test

MGV - Chassis

SUGV

Integrated Mission Test 0

NLOS-LS Transport

Packbot on Patrol in Iraq

iRobot in Action

MULE

120 MM Cannon

JEFX-06

Stryker Leader / Follower

SoSIL

Active Protective Systems

NLOS-LS Sea State test

Autonomous Nav Syste

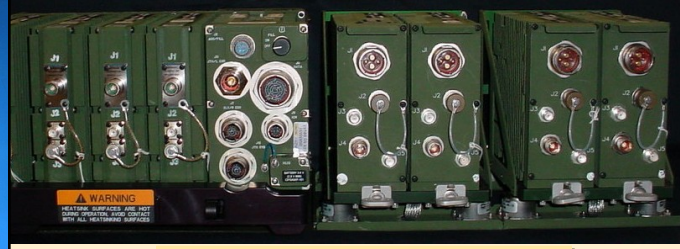
MFRF

NLOS Cannon

Fire Scout Flight Test

120 MM Breech Mortar

UGS

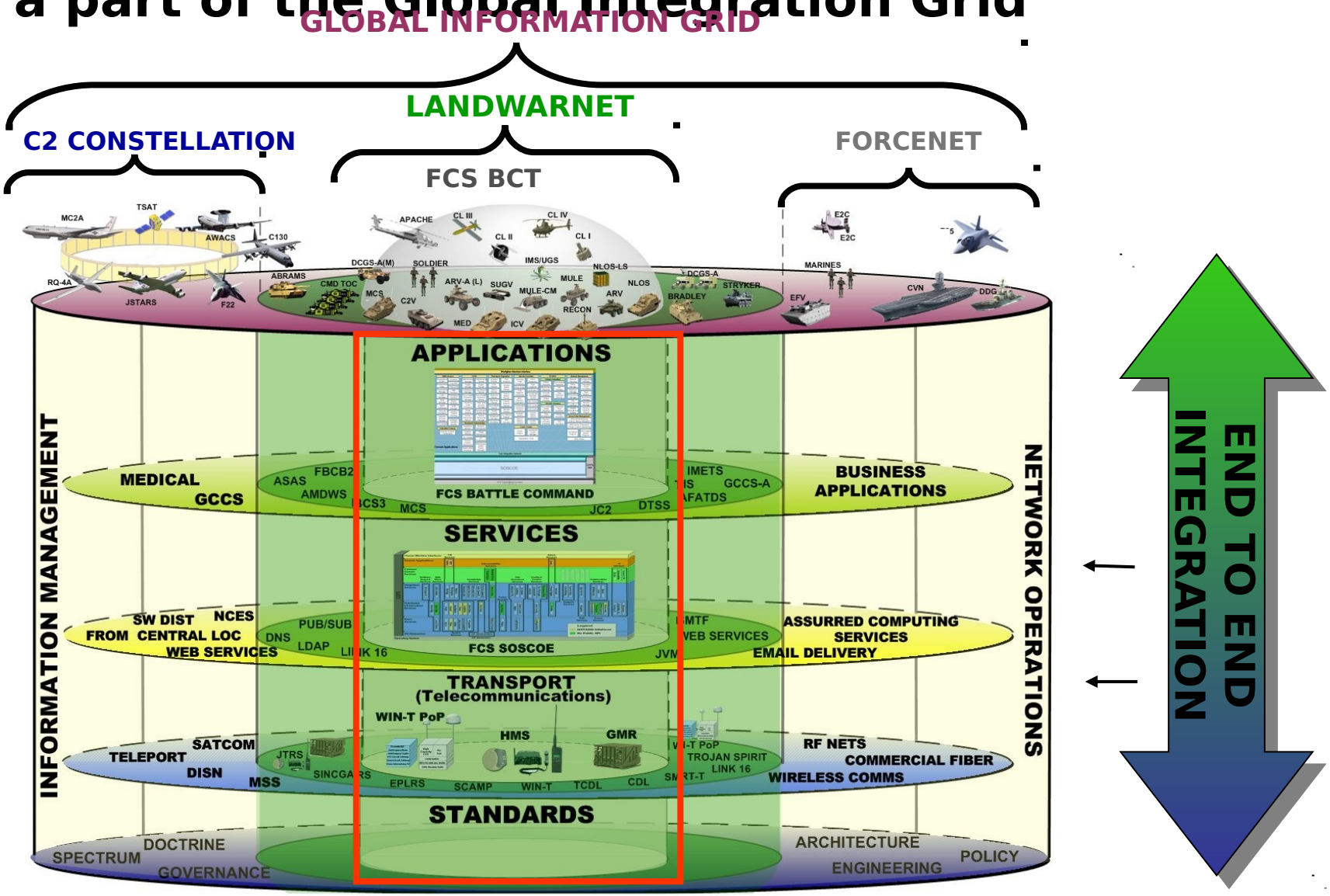


First JTRS Cluster 1 Pre-EDM

Demonstrations and Technologies On Track

FCS Network Integrates Through LandWarNet as a part of the Global Integration Grid

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry



Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

Critical FCS Supportability Requirements

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry

Embedded Training

High Reliability

Embedded Diagnostics

Pit-Stop Design

Automated PMC

$95\% A_o$

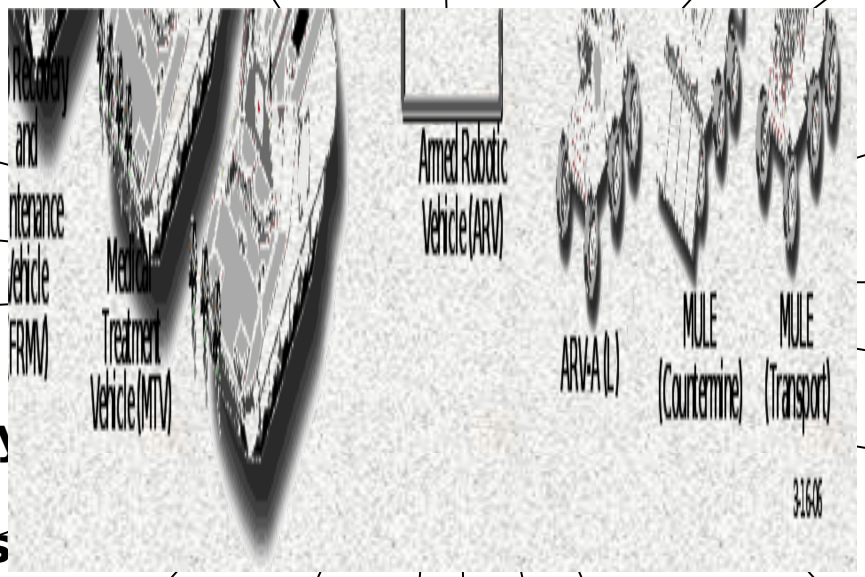
(85% KPP)

LDSS

MTTR
30 minutes

70% Commonality

No Special Tools



2000hrs
MTBSA-Mobility
(MGV only)

Annual Service

Water Purification

Maint Ratio .05
(0.1 KPP)
(CI IV - 1.1 KPP)

Platform/Soldier -
Readiness System

Embedded Diag/Prognostics

80% Crew Chief Maintenance

20 Tools all "Field" Maintenance
(40 tools for CL IV)

Large Caliber Auto Re-supply

Embedded IETM

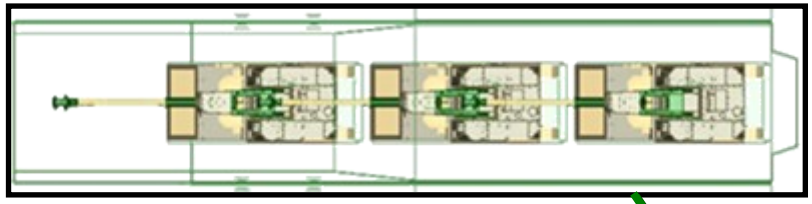
Umbilical Diagnostics

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

Balancing Capabilities

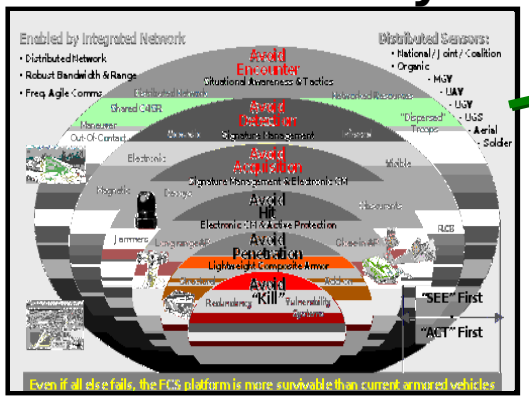
PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry

Deployability

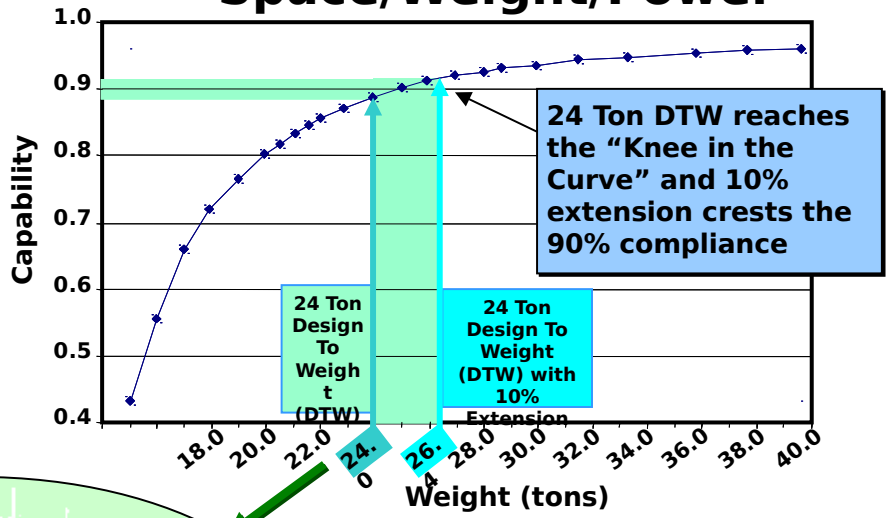


Mobility

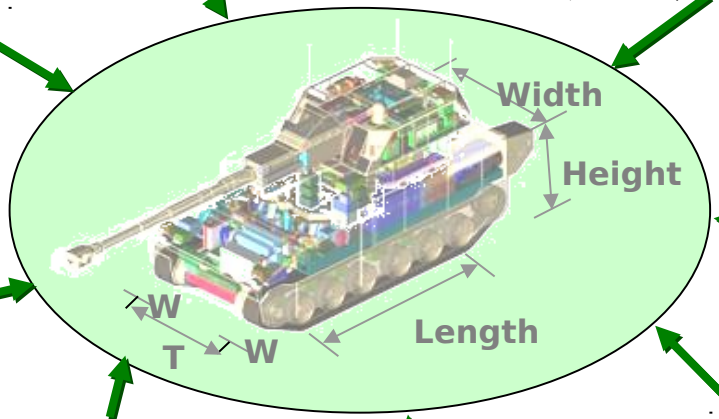
Survivability



Space/Weight/Power



Lethality



C4ISR

Sustainment

Integrate

- Soldier
- C4ISR
- Comp Programs
- Supportability
- Lethality
- Training
- MANPRINT
- UAV
- UGV

Balancing Capabilities for Maximum Performance

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

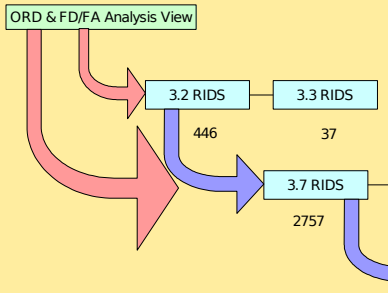
Design Influence

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry

Objectives:

- Increase Operational Availabili
  - Reduce Logistics Footprin
    - Reduce Lifecycle Cost

Requirements

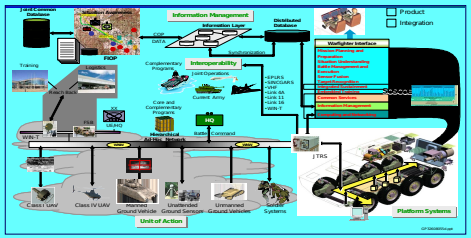


Horizontal integration of logistics into System of System Architecture and Specifications – 3815 of 10,739 total requirements in the SoS Spec

Commonality

- >70% of components among platforms – on track
- Metric Standard across family of systems - approved
- 10 Common Tools per FCS platform / 20 in the FCS(BCT)

Network Centric Logistics

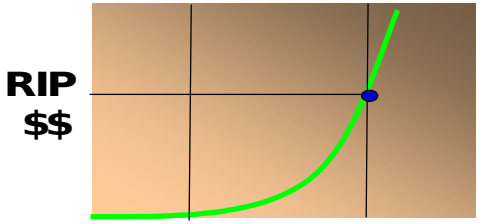


PSMRS Build 1.0
LDSS Build 0.5
Initial Set of Log Modeling Tools

Design for Support

Pit Stop Engineering

Reliability Improvement Program



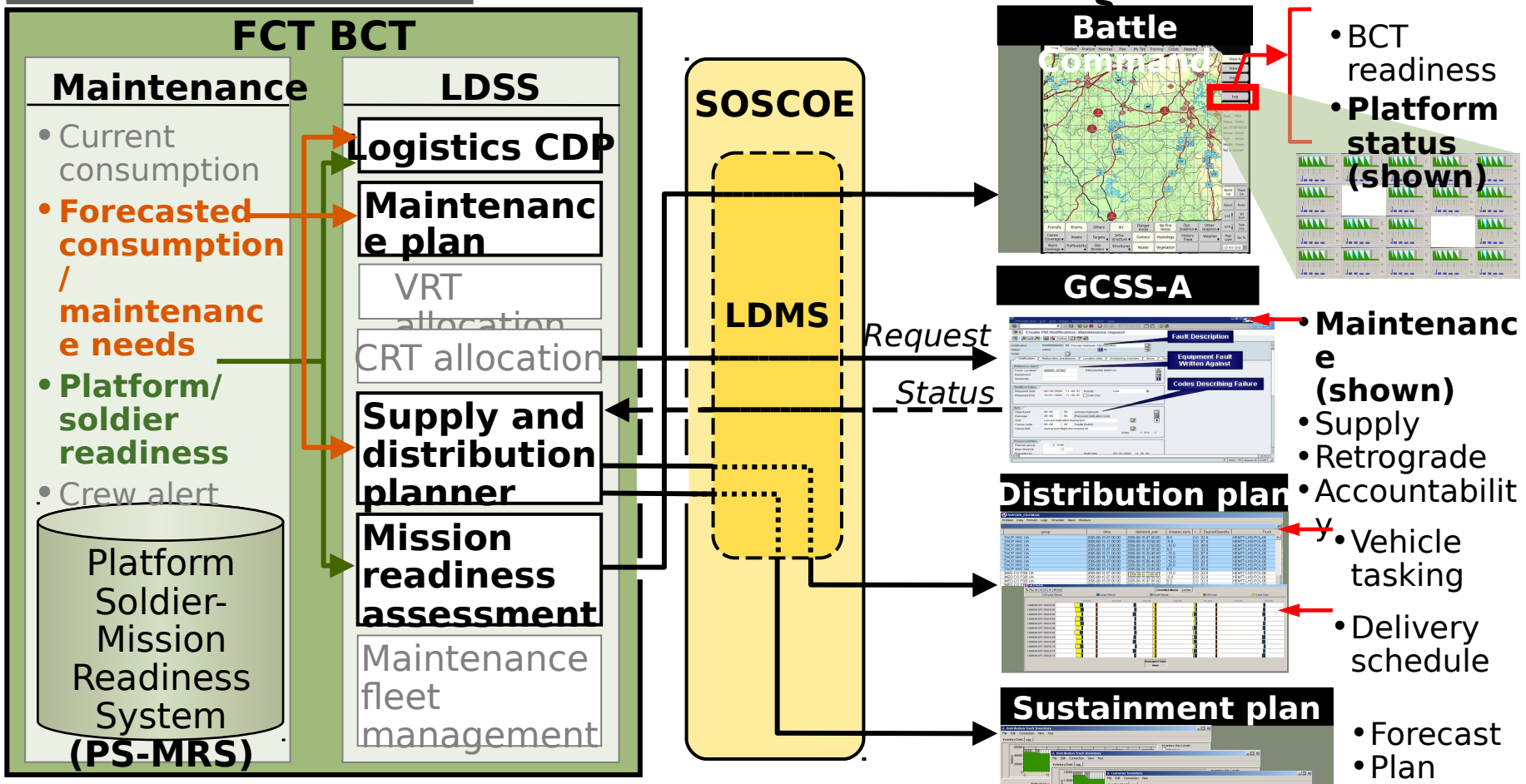
- $208M (FY05-12) Additional
- $50M Incentive Fee
- Reported through EVMS
- Quarterly reviews

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

PS-MRS/LDSS Enables a Networked, Agile Sustainment System

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry

Scenario: BCT Maintenan

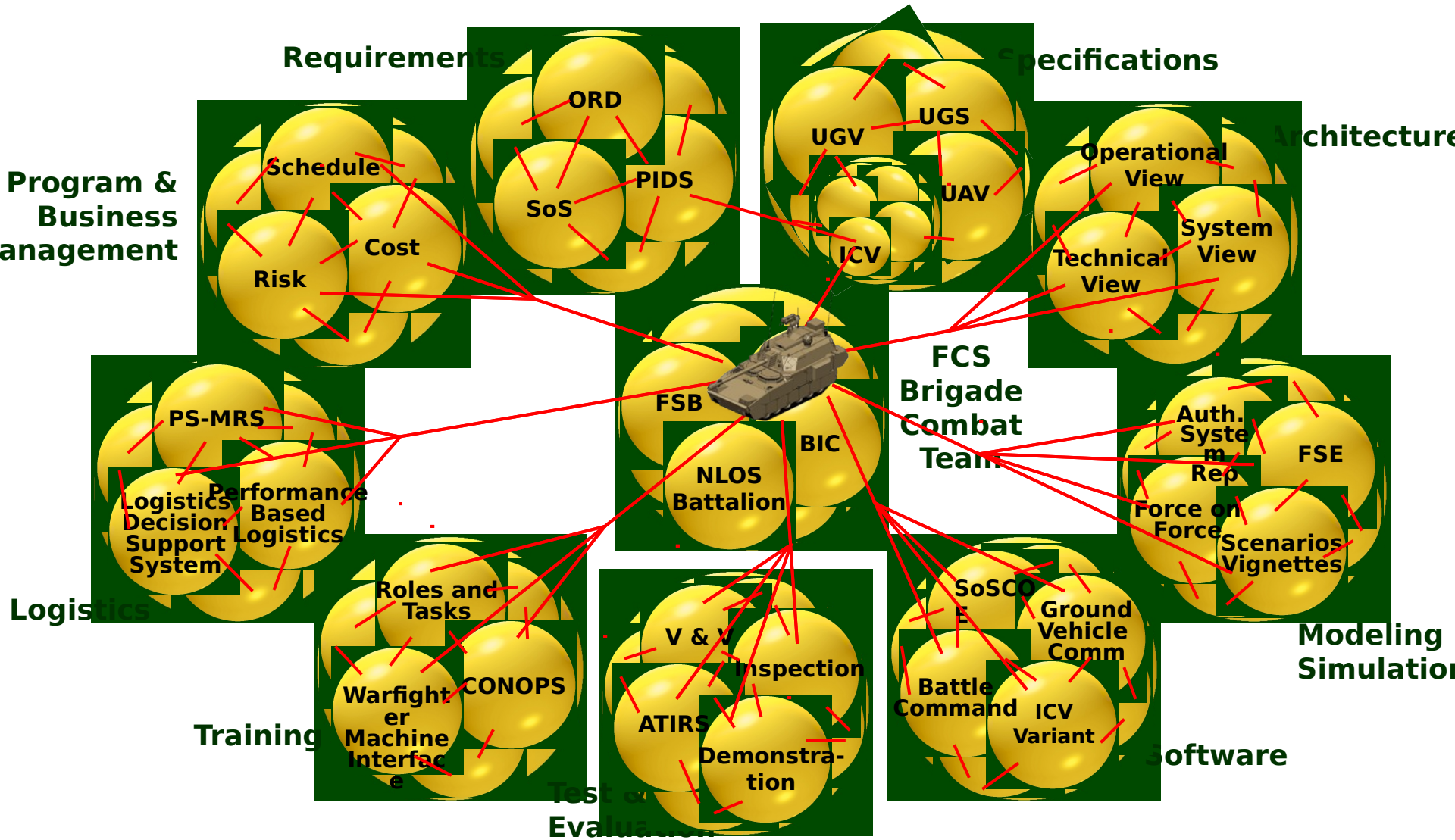


Legend:
SOSOE – System of Systems Common Operating Environment
LDMS – Logistics Data Management Service

SEE — UNDERSTAND — ACT — DECIDE

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

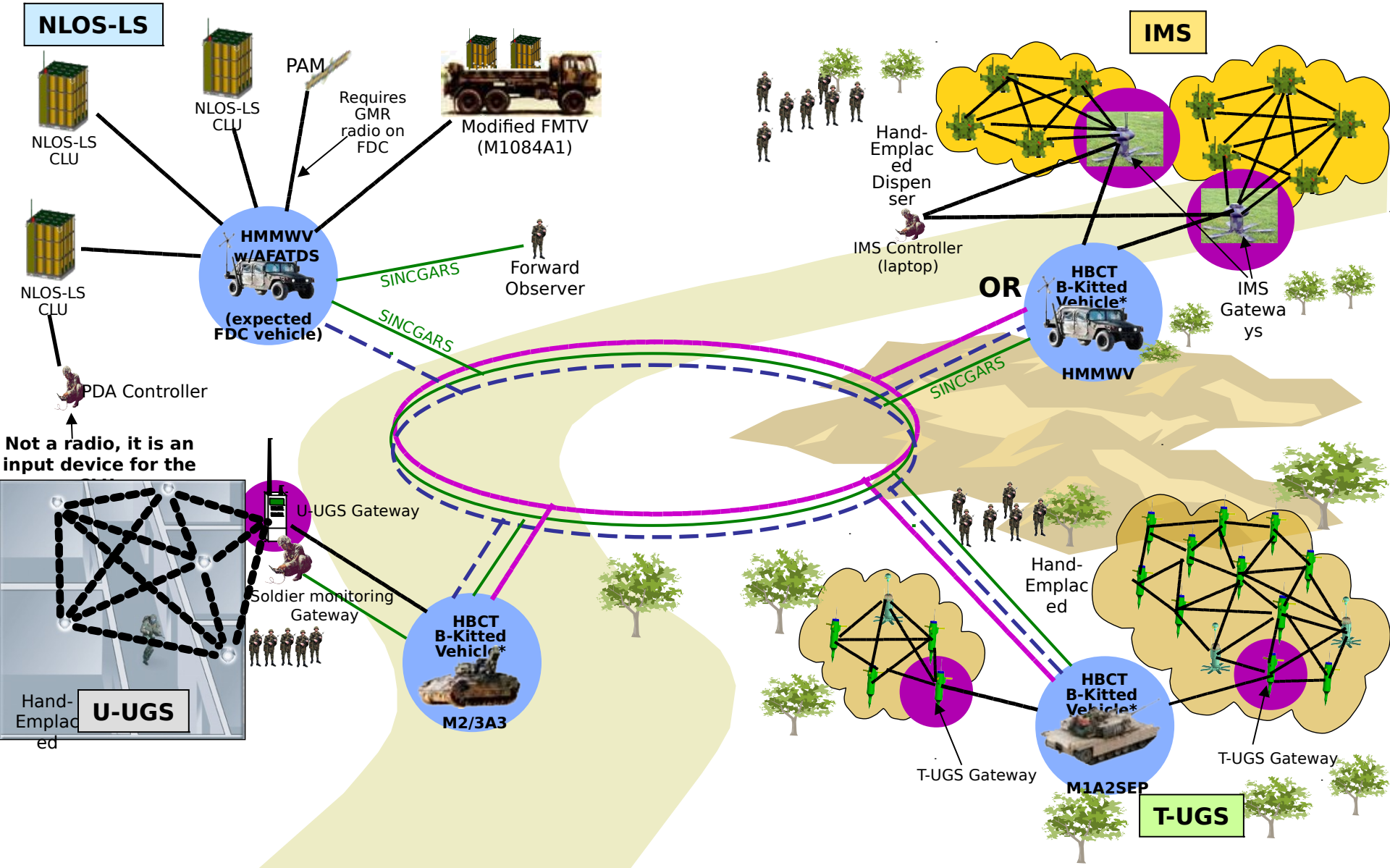
DPD Data Relationships (example)



Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

Spin Out 1 Operational Framework

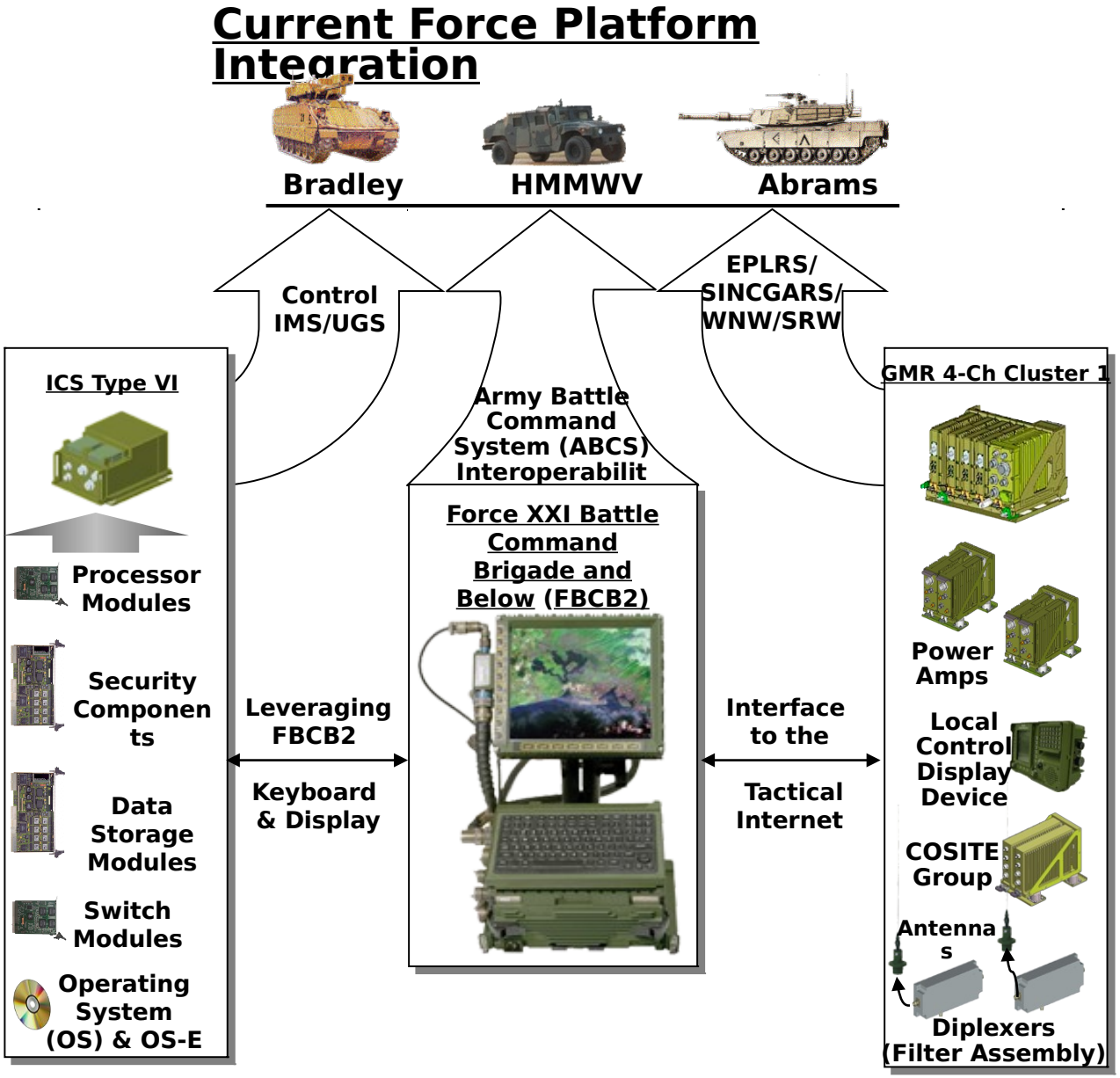
PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry



Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

PM FCS (BCT) “B-Kit” Spin Out 1

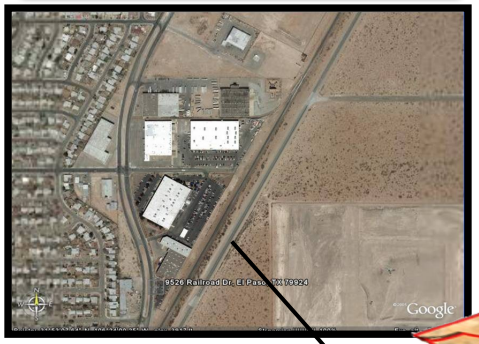
- **Software**
- **SOSCOE Standard Edition 1.8**
- **Battle Command Software Build 1**
- **Waveforms**
  - Soldier Radio Waveform (SRW)
  - Wideband Networking Waveform (WNW)
  - Enhanced Position Location Reporting System (EPLRS)
  - Single-Channel Ground and Airborne Radio System (SINCGARS)



Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

Evaluation Brigade Combat Team (EBCT)

PROGRAM MANAGER FCS
BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry



LSI Facility

White Sands Missile Range

Northern Call-Up Area

Western Call-Up Areas

~40 Miles (64 Km)

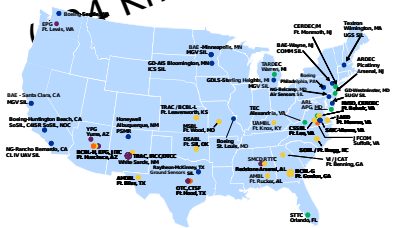
~183 Miles (~294 Km)

~100 Miles

WSMR

Ft. Bliss

SERVING OUR ARMY AT WAR
CTSF
RELEVANT AND RESPONSIVE



7,619 sq. Miles
19,732 sq. km

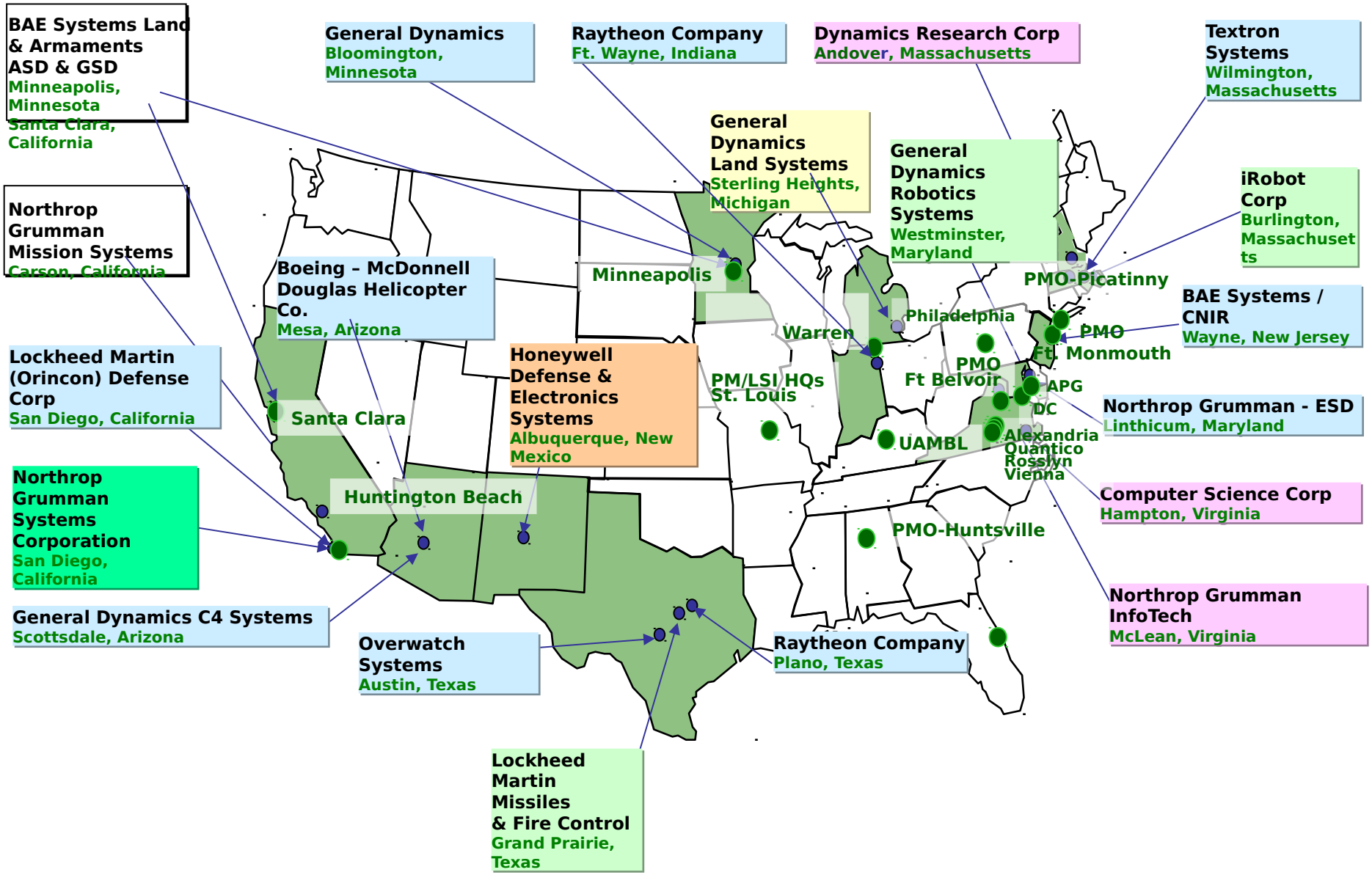
Total Available

FCS Nexus
Hub for FCS Testing, Evaluation, Conversion, and DOTMLPF Development

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, F

FCS One Team Integration

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry



Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

SUMMARY

- FCS provides the materiel for full spectrum dominance in complex environments
- Current & future leaders will
  - Establish the concepts, doctrine and training for how we fight & sustain with FCS
  - Lead soldiers with FCS to better maximize / optimize available combat power – how the logistical / sustainment pieces are designed and implemented are momentous
- The Bar is Set Higher…

  … because our Soldiers deserve the best

LOGISTICS - Critical Tenet of the Program

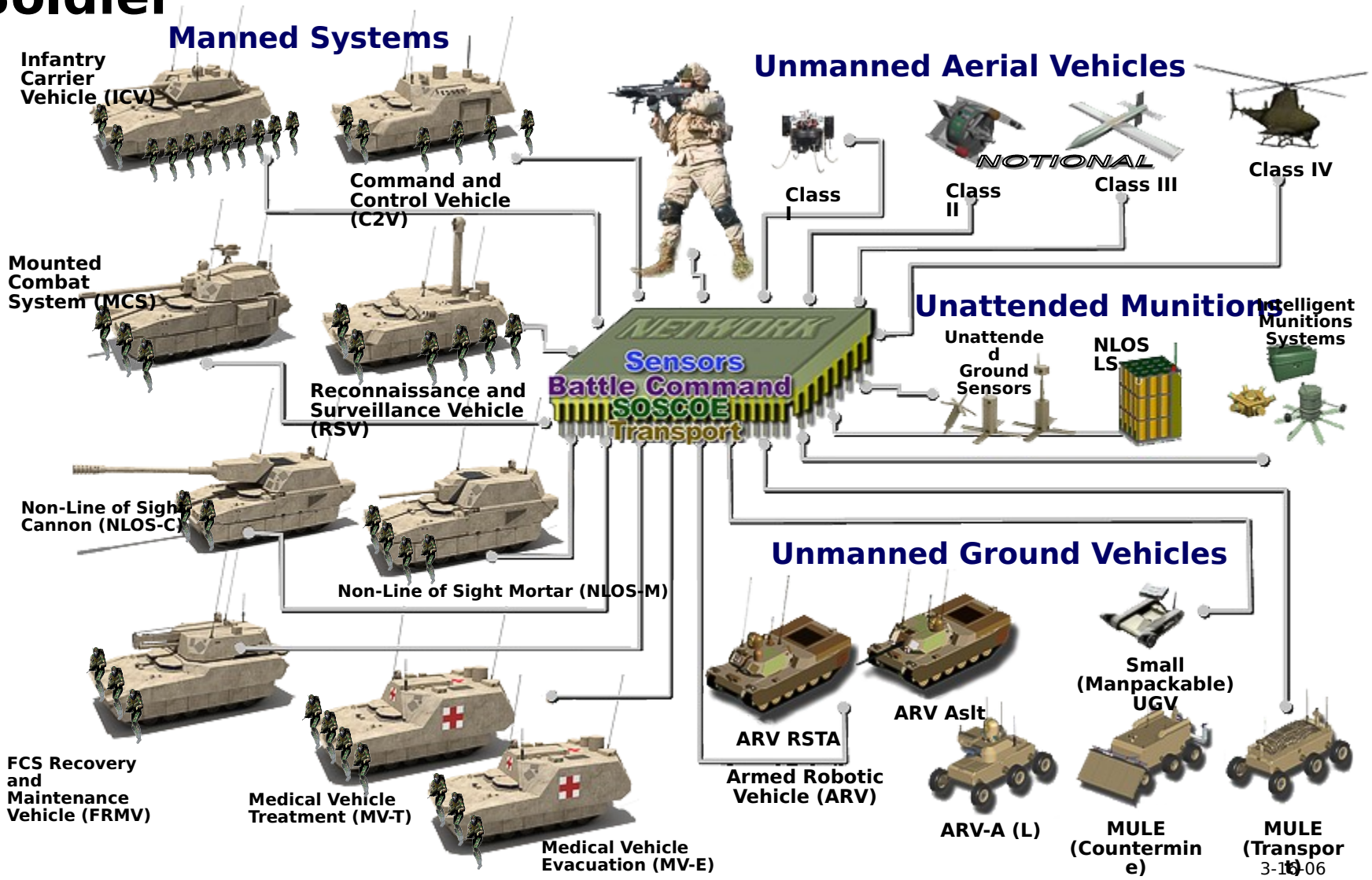
Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

PROGRAM MANAGER
FCS
BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry
BACK UP SLIDES

FCS (BCT)
18 Integrated Systems + 1 Network + 1 Soldier

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry



3-16-06

Full Brigade Combat Team… 2014

Approved for Public Release, Distribution Unlimited, TACOM 12 May 2006, FCS case # GOVT 06-6086

Recent Significant Events

PROGRAM MANAGER FCS BRIGADE COMBAT TEAM
One Team-The Army/Defense/Industry

Demonstrations and Technologies On Tra

3 Min – Continuous FCS System Video Updates-short final 042006.wmv